

Seakeeping and Manoeuvring Basin

Dimensions

170 × 40 × 5 m. The basin is mainly designed for performing seakeeping, manoeuvring and still water tests with models of seagoing ships and structures.

Carriage

The carriage with a maximum speed of 6 m/s runs over the total length of the tank and consists of:

- A mainframe, spanning the full width of the basin.
- A sub frame, with a max. speed of 4 m/s along the mainframe.

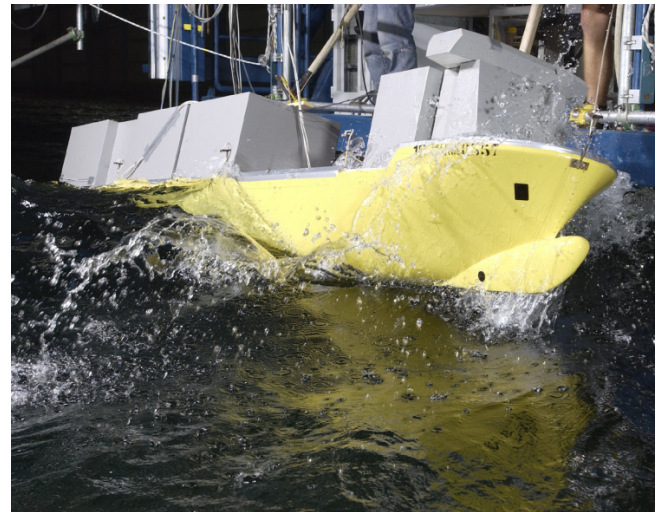
The carriage can follow all movements of the model in the horizontal plane. With an extra installed turntable, the system has a rotating arm capability.

Environment

Waves

At two adjacent sides of the basin, segmented wave generators consisting of hinged flaps are installed. Each flap is controlled separately by a driving motor and has a width of 60 cm. The capacity of the wave generator is up to a significant wave height of 0.45 m at a peak period of 2 seconds.

Opposite the wave generator, passive sinkable wave absorbers are installed. The wave generator system is equipped with an active wave reflection compensation feature and higher order wave synthesis techniques.



Wind

Wind can be simulated by an adjustable 10 m wide platform with electrical fans.

Motion Control and Dynamic Tracking

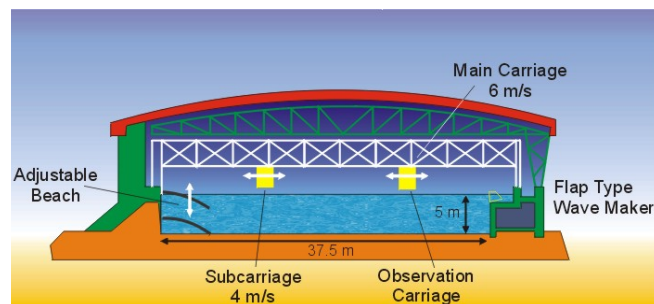
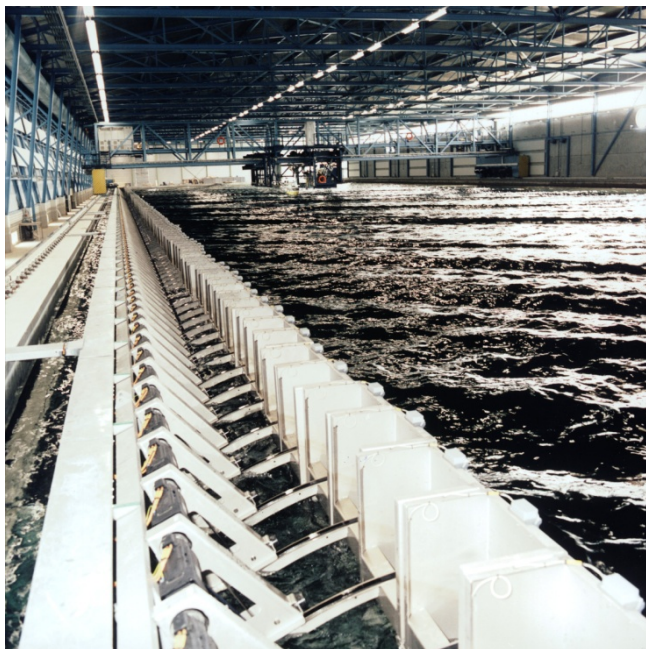
Free running tests are performed such that the model follows an arbitrary pre-defined track (straight or curved) through the basin. The carriage follows the model during this task.

Deviations from the pre-defined track are minimised through a dynamic positioning feedback loop which controls the propulsion units, additional thrusters and steering within a particular control scenario.

Motion control is realised by means of a feedback loop which activates related stabilisation systems (fins, foils, rudders, etc).

Model size range

- Model length of 2 - 8 m for moving objects and up to 10 m for moored objects.
- Floating structures of any kind, size depending on water depth and wave conditions.



Test capabilities

- Seakeeping tests in waves and wind from arbitrary direction.
- Resistance and self propulsion tests in calm water and waves.
- Oscillation (PMM) and rotating arm tests in calm water and waves with a restrained model to determine hydrodynamic coefficients.
- Captive or free sailing manoeuvring tests in calm water and waves.
- Installation and sea transport tests of offshore constructions.
- Tests on moored or fixed objects to determine the motions and loads due to waves and wind.

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